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The effect of family control on value and risk-taking in Mexico: A socioemotional wealth approach

Abstract

We construct an analytical framework to incorporate agency and stewardship perspectives, and the concept of socioemotional wealth (SEW), to analyse the effect of family participation on firm value and corporate risk-taking in Mexico. We find family firms enjoy higher value and tolerate higher levels of risk than non-family concerns. This differential becomes more important in more highly valued firms and more risk tolerant firms. Whereas the differential is also positively associated with the cash ownership of controlling families, the observed value/ risk effects entrench at higher levels of family ownership (i.e. above 40%-50%). We test whether the risk-taking preference of family firms is a mixture of two types of risk, performance hazard risk, which captures the familial desire to preserve SEW; and venturing risk, which firms take in expectation of improving future performance. Family firms seem to take more performance hazard risk independently of their cash flow ownership, which suggests that family firms perceive patrimony as a means of safeguarding resources for heirs, which raises tolerance to performance hazard risk. Firm value increases when firms follow good corporate governance practices.

Keywords: Mexico; family firms; socioemotional wealth; corporate governance; performance; risk-taking.

1. Introduction

We investigate the performance, measured by corporate value and risk-taking, of family firms in Mexico within an agency-theoretic framework, which implicitly accounts for the intricacies of familial relationships. We motivate our study on a new perspective to explain the financial behaviour of family businesses based on non-financial reasons, which carries the label of socioemotional wealth (SEW). Gómez-Mejía et al (2007) initially developed the concept of SEW, with Berrone et al (2012) suggesting SEW is worthy of further research. The Mexican setting is relevant since Mexico is the country with the highest proportion of family firms (La Porta et al, 1999). Although the family ownership model dominates in Mexico, and generally across Latin America, empirical research on family firm performance for the region is scant albeit demonstrative of the complexities of family businesses (Brenes et al, 2011; Chong and Lopez-de-Silanes, 2007; González et al, 2012; Machuga and Teitel, 2009).¹

We motivate our study on the decision by Mexico's Stock Exchange to introduce - in 1999 with subsequent amendments - a Mexican Code of Corporate Governance (MCCG). For firms in countries like Mexico, enacting codes of best practice effectively substitute for observed institutional frailties, especially if the codes comply with international standards (La Porta et al, 1998; Poletti-Hughes, 2009). Compliance offers family firms a vehicle for resolving intra-familial conflicts (Holan and Sanz, 2006). The marked differences in institutional and environmental factors between an emerging nation like Mexico and western economies imply the established norms, obtained from studies of western firms, may not apply to Mexican firms, which infers that country-based studies like ours are an

¹ González et al (2012) suggest their findings on family firm performance in Colombia generalize to other Latin American countries including Mexico because of cross-country similarities in corporate governance and financial development. Brenes et al (2011) survey family members at 22 family firms in Latin America and consider the impact of governance structures on firm performance. On Mexican firms, Chong and Lopez-de-Silanes (2007), and Machuga and Teitel (2009) find lower capital costs encourage firms to improve governance practices; and earnings quality is lower if family ownership is concentrated.

appropriate conduit for knowledge development (La Porta et al, 1998, 2002; Kim and Gao, 2013).

We initiate our analytical framework from a broad perspective that performance differentials between family and non-family firms are indicative of the different principal-agent problems facing each cohort (Villalonga and Amit, 2006). In explaining why family firms outperform their non-family counterparts, Anderson and Reeb (2003) and Maury (2006) posit that family firms in western economies are more effective in controlling agency costs because family members serve as principal and agent. A more intricate explanation, utilising a stewardship perspective, suggests that the comparative advantage of family firms is due to collective behaviour and the subordination of personal interests to family objectives (Eddleston and Kellermans, 2007). However, family firms could face intra-familial conflict, which creates antagonism amongst family members and leads to underperformance (Dyer, 2006). Irrespective of whether family members behave as agents or stewards, the family firm literature demonstrates that governance ultimately affects firm performance (Chrisman et al, 2007; Jaskiewicz and Klein, 2007).

We extend our analytical framework to incorporate developments in the family business literature as advocated by Berrone et al (2012). They make the case for the socioemotional wealth (SEW) approach to distinguish behavioural factors between family firms and non-family concerns. The concept of SEW or affective endowment contends that families, particularly in emerging countries, are emotionally connected to their firms or family entities (Gómez-Mejía et al, 2007). How SEW affects firm performance is ambiguous. One perspective sees family firms as value maximisers because of the inextricable links between firm value and familial wealth, which motivate family owners to control agency costs (James, 1999). In contrast, family owners prioritise firm survival over value maximisation because of patrimony and a fear of endangering familial wealth

(Thomsen and Pedersen, 2000; González et al, 2012). In a SEW setting, families actively seek to retain familial ownership and control for subsequent generations though the desire to perpetuate can be driven also by non-financial criteria, such as, preservation of family authority, enjoyment of familial influence, inclusion of family members in key executive roles, continuation of family identity, among others (Gómez-Mejía et al, 2007). The use of patrimony to secure resources for heirs is a long-established, cultural tradition in Mexico (Ruiz-Porras and Steinwascher, 2007).

Our analytical framework utilises a two-stage empirical approach: first, we examine the performance (firm value) differential between family firms and non-family concerns; second, we test if risk-taking behaviour explains value differentials. Our rationale invokes the behavioural agency problem (Wiseman and Gómez-Mejía, 1998) that combines elements of agency theory and prospect theory of the firm. Under this schema, the risk preferences of family controllers (agents) are heterogeneous and vary by strategic choices. Agents formulate their choices under a “loss aversion” framework that encourages risk-taking providing agents are more sensitive towards losing wealth than increasing it (Tversky and Kahneman, 1986, 1991).

The strategic choice process can yield either favourable or unfavourable outcomes for economic development. For instance, perpetuating the family entity (or SEW) could induce conservative strategic choices for risk-taking that belie value maximisation principles, which in turn may dampen firms’ future growth opportunities with implication for the wider economy. Similarly, family owners may behave in a risk-averse manner because they hold an undiversified portfolio (Morck and Yeung, 2003). Alternatively, strategically choosing to preserve SEW can incentivise family owners to increase their tolerance to risk. This view assumes the objective of family firms is long-term survival, which is expected to

converge with economic growth and competitive advantage (Gómez-Mejía et al, 2011; Berrone et al., 2012).

We employ two-way cluster regression analysis to measure the effect of family control and ownership on firm performance. Two-way clustering improves the precision of standard errors leading to better inferences than one-way cluster type methods (Petersen, 2009; Thompson, 2011). Noting the potential for endogeneity problems to arise between performance and firms' corporate governance structures, we treat certain ownership and control characteristics of firms as exogenous in the short-term for investigative purposes on grounds that these features are mostly time invariant (Adams et al, 2010). Finally, we use system generalized method of moments (system-GMM) to account for simultaneity, omitted variable bias, and dynamic endogeneity.

We measure firm performance using indicators of corporate value and risk-taking. Our conjecture is that family firms in Mexico perceive family control as a means to enhance patrimony and safeguard SEW for heirs. To test this proposition, we draw on claims that the risk-taking preference of family firms is a mixture of two types of risk (Gómez-Mejía et al, 2007; 2011). Accordingly, we construct indicators of performance hazard risk and venturing risk. Performance hazard risk implies the probability of failure, threats to survival or below-target performance actions that firms take with the familial desire of preserving SEW. Venturing risk signifies the overall business risk that arises with the perusal of projects with uncertain returns but with an upside potential that firms take in expectation of improving future performance. Under the SEW perspective, family firms may be more likely to make business decisions that decrease performance variability even when the short-term outcome is a below-target performance (performance hazard risk). At par, the willingness to select high variance projects might be less, reducing the overall firm risk (venturing risk). If our conjecture holds, family firms should tolerate performance

hazard risk if it preserves SEW and be averse to venturing risk (Berrone et al, 2012). A priori if our conjecture holds, we expect to find that performance hazard risk is the more dominant risk type for family firms in Mexico. To the best of our knowledge, this question remains unanswered in the extant literature. To expedite the analysis we carefully construct a dataset by means of hand collection for 101 listed Mexican firms between 2004 and 2013.

This study contributes to the corporate governance literature in various important aspects. First, we develop our study based on a new theoretical formulation within the family business literature, advocated by Gómez-Mejía et al (2007) and Berrone et al (2012) which suggests that corporate financial behaviour might be the result of non-financial reasons (socioemotional wealth). To our knowledge, this is the first empirical study in the financial literature to apply the socioemotional wealth spectrum to explain performance differentials between family and non-family firms. Second, we demonstrate with a robust analysis that in effect, in a country like Mexico where “familial” behaviour² predominates, the theory of socioemotional wealth is fit for explaining our hypotheses. Our findings are relevant beyond the Mexican setting to other countries with cultural similarities, especially in Latin America, where familial behaviour dominates. By examining this relationship, this study not only provides further insights into our understanding of family businesses but also extends the literature on corporate value and risk-taking. We contribute to literature on firms’ value and corporate risk-taking by empirically testing whether the objectives of family firms follow a financial aim (venturing risk) or a non-financial aim (performance hazard risk).

In preview, we offer two main results. Firstly, family firms are more highly valued than non-family concerns in Mexico. Secondly, family firms willingly assume risk, and

² The term familial behaviour highlights the differences in family and other social groups regarding the emotional, socio-cultural and legal relationships between the various members: spouses, parents, sibling, children and other relatives (Laungani, 2006). As discussed in Janjuha-Jivraj and Spence (2009), familial behaviour describes the emotional ties of a familial unit, which can be a factor for intergenerational reciprocity by the use of legal and financial structures.

more specifically, performance hazard risk. The results support the SEW position that patrimonial objectives motivate the strategic choices of family firms, which conditions the behaviour of firms to assume additional performance hazard risk that in turn yields higher corporate value. Although our results are at odds with some previous findings of lower value and risk aversion at family firms (Morck et al, 2000; Perez-Gonzalez, 2006), we posit that the strategic choices of family businesses implicitly incorporate culture and tradition, which inform behavioural relationships and explain discrepancies in reported results. We suspect in countries like Mexico (and probably Latin America in general), the strength of family tradition increases the power of the SEW effect, and recommend that future research employs cross-country empirical analysis to consider this proposition.

We structure the paper as follows. Section 2 presents the hypothesis development. Section 3 presents the Data. Section 4 and 5 presents the Methodology and Results, respectively. Section 6 concludes.

2. Hypothesis Development:

2.1 Firm value and ownership in family firms

The ways in which families own, control and manage their firms could produce performance differentials not only amongst family firms but also between family and non-family concerns. The empirical record shows family firms outperform non-family in the US (Anderson and Reeb, 2003) and west Europe (Maury, 2006). Agency theory and stewardship theory propose alternative explanations for this result. In an agency-theoretic framework, family controllers monitor firm managers, which reduces agency costs and ultimately improves performance (La Porta et al, 1998). A stewardship perspective posits that feelings of responsibility and burden sharing motivate family members. Such feelings can create a shared familial objective to fulfil organisational goals assuming that family members demonstrate altruistic behaviour. In this setting, altruism binds the interests of

senior and junior family and fosters a participative strategic process, which lowers the propensity for intra-familial conflict leading to better firm performance (Eddleston and Kellermans, 2007).

The empirical norms of western economies need not repeat in emerging nations like Mexico. Premised on agency theory, family firms can underperform if family controllers expropriate resources at the expense of the firm and other family members (Jensen and Meckling, 1976; Shleifer and Vishny, 1986). Stewardship theorists develop this point. They argue that expropriation changes the behaviour of family controller's from collectivist to self-interest. This change breeds familial conflict and deleteriously affects firm performance. Other sources of conflict similarly affect performance, for instance, sibling rivalry, marital disharmony, and dispersed ownership rights across family members. Such behavioural traits produce negative emotions and antagonism that create inefficiencies, which family members compound if they become unwilling to monitor, evaluate and discipline one another. Ultimately, this process incentivises opportunism and shirking behaviour that could retard firm performance (Dyer, 2006).

The role of patrimony requires special attention in performance evaluation. In Mexico, a strong cultural tradition perceives patrimony as a vehicle to secure resources for heirs (Ruiz-Porras and Steinwascher, 2007). The benefits of patrimony include the components of socioemotional wealth (SEW): preserving family authority, enjoying family influence and continuing familial identity (Gómez-Mejía et al, 2007). Family controllers lengthen their tenure and control agency costs to maximise familial wealth. This feature of patrimony encourages longer investment horizons, which favourably influences investment efficiency and firm value (James, 1999; Machuga and Teitel, 2009). Longevity creates reputational and branding effects (Demsetz and Lehn, 1985), and improves family relationships with external parties like banks with US family firms realising lower debt

financing costs (Anderson et al, 2004). Moreover, the prospect of family firm managers engaging in opportunistic behaviour is lower when debt holders perform stringent supervision (González et al, 2012).

Under our analytical framework, how family control impacts firm value is indicative of a country's culture and traditions, the incentives and opportunities of controlling shareholders, and a country's legal protection (La Porta et al., 1998). We contend that patrimony constitutes a comparative advantage for family firms whose greater investment efficiency delivers higher firm value compared to non-family firms:

H1a. Firm value is greater in family firms than in non-family concerns in Mexico

The size of cash flow stakes owned by controlling shareholders affects firm value. Large cash flow holdings are consistent with fewer agency conflicts and higher firm values (see Claessens et al, 2002 on Asia; Gompers et al, 2004 on the US). Although the benefits of holding larger cash flow rights increase relative to the loss from expropriation (Yeh and Woidtke, 2005), the relationship between cash flow rights and firm value is non-linear: value diminishes when family control reaches 60% for US family firms (Anderson and Reeb, 2003) and 51% in European countries (Thomsen and Pedersen, 2000). At lower levels of ownership, the positive alignment between cash flow rights and firm value could indicate that other (non-family) shareholders desire value maximisation and more effectively monitor firm activities. Nevertheless, the propensity for expropriation is increasing in cash flow rights, which suggests controlling shareholders could benefit from pursuing different objectives, including firm survival, technological innovation and growth (Anderson and Reeb, 2003).

Higher levels of family control increase the propensity for entrenchment effects, which can reduce firm value if older members remain active albeit no longer effective in their roles (Shleifer and Vishny, 1997). Entrenchment restricts deployment of outside

entrepreneurial talent in favour of low-quality family members in key managerial roles, which increases the prospect of expropriation (Buchanan and Yang, 2005; Perez-Gonzalez, 2006). Entrenchment can prevent family firms from responding promptly to underperformance and changing leadership (Dyer, 2006). Therefore, our second hypothesis posits a relationship between family cash flow rights and firm value:

H1b. An inverted U-shape characterises the relation between firm value and family cash flow rights.

2.2 Risk-taking in family firms

We rationalize that firm value derives from controlling owners' preference for risk. If individuals exhibit risk aversion in decision making when expected returns are equivalent, one would expect risk tolerance to increase in direct proportion to expected returns. Therefore, risk preference explains differences in the level and variance of expected returns on investments (March and Shapira, 1987; Shleifer and Vishny, 1986). However, the risk preferences of family controllers might incorporate other important familial objectives. Family ownership often promotes longer-term objectives, which raises involvement in entrepreneurial activities, for instance, expanding and renewing operations, and building on institutional capabilities (Rogoff and Heck, 2003; Zahra et al, 1999). In contrast, the prospect of losing the benefits of patrimony could induce conservatism at family firms (Naldi et al, 2007). Agency theory offers a different notion of family risk taking. Lins et al (2013) find that family-controlled firms underperform due to lowering investment to survive a financial crisis, which is to the detriment of outside shareholders. Attig et al (2016) find through a study of dividend policy, that family firms reduce cash holdings and cut investment expenditures even at times of high profitability. This suggests that the intrinsic reason for this behaviour is not the preservation of corporate resources but the extraction of private benefits. Boubaker et al (2016) discuss that firms with a large

controlling shareholder take less corporate risk because the dominant shareholder's investment is commonly not diversified, which acts to incentivise the appropriation of existing wealth as opposed to the innovation to produce wealth. This effect is more compelling in family firms because normally holdings are less diversified. The empirical record on risk-taking by family firms is ambiguous due partly to incongruent definitions of risk (Huybrechts et al, 2013). We incorporate this result into our analytical framework and decompose risk into constituents to control for variation in risk-taking resulting from different family objectives.

We conjecture that Mexico's family firms perceive family control as a rational way of safeguarding resources for heirs. Following Gómez-Mejía et al (2007, 2011), we view the risk-preference of family firms as a mixture of two types of risk: performance hazard risk and venturing risk. Based on behavioural theory, performance hazard risk encapsulates the familial objective to preserve SEW although it increases the probability of below-target performance and bankruptcy. Under this premise, family controllers prefer to avoid a loss, especially when it refers to their socioemotional wealth. Therefore, family controllers are likely to accept threats to the firm's financial health (i.e., a greater probability of failure and below-target performance) to prevent that loss to SEW (e.g., acceptance of credit at high interest rates as an alternative of giving up equity to new investors). Gomez-Mejia et al (2007) explain that this behaviour may appear irrational because organizational failure implies the loss of all socioemotional wealth. Nevertheless, family firms may willingly assume performance hazard risk with the aim of preserving control of the family business, under the belief that they can manage the acquired risk eventually as it originates from inside the organization (Shapira, 1992). In contrast, family controllers assume venturing risks to improve firm performance when performance falls short of a desired level. Given these are forward-looking risks, firms face more variable and uncertain performance

outcomes. A priori family firms willingly tolerate performance hazard risk if it preserves SEW but demonstrate aversion to venturing risk (Berrone et al, 2012).

Therefore, our analytical framework does not presume that family controllers take additional risks in expectation of higher returns. Rather, risk-tolerance maybe indicative of the objective to prioritise firm survival over value maximisation. Although risk-aversion could indicate failure to implement profitable growth strategies (Fama and Jensen, 1983; Morck et al, 2000; Campbell et al, 2001), family firms in the US manage the inherent risks of growth strategies by using more affiliate directors in an advisory capacity that does not reduce the role of family controllers (Jones et al, 2008).

Drawing on the preceding arguments, our final hypothesis posits that family firms are more risk tolerant than non-family firms, because the strategic objective of family firms is to preserve SEW. Our analysis will shed light on which type of risk matters most for family firms in Mexico.

H2a. Family firms in Mexico take more risk than non-family.

H2b. Risk-taking in family firms reflects the strategic objective of protecting patrimony over value maximisation.

3. Data

Initially we sample all non-financial publicly listed firms on the Mexican Stock Exchange during 2006 (112 out of 134 firms). Non-availability of some reports reduces the sample to 101 firms in 2006. The final dataset contains 874 firm-year observations distributed as firms (year): 88 (2004); 98(2005); 101 (2006); 97 (2007); 90 (2008); 87 (2009); 84 (2010); 79 (2011); 77 (2012); and 73 (2013). We obtain ownership and board structure information, and market and financial data from annual reports and DataStream, respectively.

Investigating relationships involving family firms and their value and risk-taking requires suitable proxies for value and risk. To measure value, we use *Tobin's Q* – (total assets - book value of equity + market value of equity) / total assets); for robustness we employ a second value indicator - the *market-to-book ratio of equity*.

It is challenging to find proxy indicators of performance hazard risk and venturing risk because most risk indicators contain elements of each risk. Therefore, we follow Gómez-Mejía et al (2007) and proxy for performance hazard using the natural logarithm of $\text{sales}_{t-1} - \text{sales}_t$, this measure conceptualizes the possibility of negative outcomes, such as, the reduction of target achievements. Negative values indicate increasing performance (represented by sales), while positive ones are representative of decreasing performance. Hence, this variable increases as firm performance declines. Our indicator of venturing risk is termed firm risk. We specify the market model to estimate beta to proxy systematic risk, and calculate firm risk from the standard deviation of the residuals of the regression. Venturing risk represents the actions that firms follow when performance falls below target, which also increases the likelihood of unexpected outcomes, causing variance in performance. Such variance arises when firms pursue projects with uncertain returns, but with an upside potential, in search of improving firm performance. We define total risk as Pathan's (2009) asset return risk indicator; the standard deviation of daily stock returns in year t (total risk) times the annual ratio of market value of equity-to-book value of total assets of year t times the square-root of 250 (number of trading days in a year). Total risk represents a composite of different types of risks that a firm takes and defines the general risk preferences of the corporation.

To measure family control we identify the largest shareholder holding the majority of voting rights at a controlling threshold of 20% from annual reports. Our choice of threshold follows evidence that owners exert significant influence over firms at this level (Claessens

et al, 2002; La Porta et al, 2002). A binary variable identifies family-owned firms and equals one if the ultimate controller in the control chain is an individual, zero otherwise. Therefore, an ultimate controller is the shareholder owning the largest direct or indirect stake of voting rights. Ultimate control occurs when control rights exceed their cash flow rights through deviations from the one share–one vote rule, pyramiding and cross-holdings (Faccio and Lang, 2002). A family in ultimate control holds a minimum of 20% of the controlling stake in the firm. Individuals are not in ultimate control at non-family concerns, which are held by the State, a voting trust (except when it is a family voting trust), or another corporation. We construct family corporate ownership [FCO] around the cash flow rights of a controlling family, and measure cash flow ownership over a scale of ten intervals each spanning ten percentage points: 1 represents the lowest ($>0\%$ to $<10\%$) and 10 the highest range (90% to 100%) of cash flow ownership.

Following Villalonga and Amit (2006), a binary variable (CEM) signals use of control mechanisms. CEM equals one if an ultimate controller enhances control through any of the following mechanisms: (i) dual class shares: when shares carry limited voting rights for Mexican and foreign investors; (ii) pyramids: we deem control of Firm Y by pyramiding if the ultimate owner controls Y indirectly through another corporation that is not wholly controlled. Pyramiding implies a discrepancy exists between the largest shareholder's control and ownership rights; (iii) multiple control chains: In Mexico, families consolidate their holding power through intra-familial agreements.

We construct the BD Index to proxy the structure of the board of directors and control for inter-firm variation in corporate governance. BD increases by one unit if a firm complies with any of four good corporate governance practices recommended by the MCCG: (i) Board size - the number of board members (excluding deputies but including the chairperson). BD increases by one if board size ranges from five to fifteen members;

(ii) Independence - the ratio of independent directors-to-board size. Independent directors should not hold links to a firm and in the case of family firms are not family members. BD increases by one if the ratio equals at least 20%; (iii) Board experience - the ratio of the number of public directorships held by board members-to-board size. BD increases by one if the experience indicator lies between one and three. Boards become busier when members hold three or more directorships (Ferris et al, 2003); and (iv) CEO-Chairperson duality. BD increases by one when firms separate the roles of CEO and chairperson.

Our regressions specify firm-level controls. Leverage is the ratio of total debt-to-market value of equity. The natural logarithm of total assets is proxy for size. In addition to conflicts of interest between owners and managers, agency theory identifies conflicts between equity holders and debt holders since debt contracts incentivise equity holders to invest in a sub-optimal manner. An asymmetric distribution of gains in favour of equity holders could encourage risk-taking even if investments prove to be value-decreasing (Harris and Raviv, 1991). Implicitly, increasing debt could signal a defensive strategy by equity holders because new debt issues lessens the probability that controllers will be voted out. It suggests the motivation of controllers is to secure private benefits. However, issuing debt could retard private benefits because the probability of bankruptcy is increasing in debt, ultimately erasing benefits, whilst debt covenants serve to constrain the control of owners (Harris and Raviv, 1988). Similarly, the free cash flow hypothesis posits that commitment to pay out future cash flows to debt holders constrains the accrual of benefits to equity holders (Jensen, 1986). We elect to allow the data to reveal the relationship between firm value and leverage for Mexican firms, but expect a positive relation between leverage and our measure of venturing risk assuming managers transfer resources from bondholders to shareholders (Leland, 1998).

A priori size positively affects firm value and performance hazard risk if economies of scale create barriers to entry (Short and Keasey, 1999). Furthermore, larger firms enjoy wider access to internal and external funds. In terms of venturing risk, larger firms may demonstrate conservative behaviour when facing risky investment projects if the business is stable and returns are less volatile (John et al, 2008). To control for risks associated with higher leverage, we use the fixed assets ratio - the ratio of net total plant and equipment-to-total assets. To control for growth opportunities, which imply more risk-taking (Nguyen, 2011), we specify the dividends ratio - cash dividends paid-to-equity, which also is a vehicle to monitor management performance since firms that pay higher dividends and reveal greater detail on cash flow to the market may do so to minimise the risk of insider expropriation (González et al, 2013). However, firms beset with agency problems, say due to use of control enhancement mechanisms, might be pay a lower dividend (see Attig et al, 2016, for discussion on family firms and dividend policy. In the regressions that follow, we assign unity to positive values of the dividend ratio and zero otherwise. We specify the number of years since incorporation in logarithms to measure firm age. Aging firms could lose their ability to compete, which causes performance to deteriorate as the firm decays. In contrast, age could help firms become more efficient because they find their comparative advantage and learn-from-doing. Similarly, mature firms might be increasingly averse to risk in comparison to younger firms, or older firms simply grow more adept to managing risk. Age also affects a firm's corporate governance with older firms expected to develop superior governance practices. Lastly, we specify a binary variable, *Crisis*, which equals unity for the years 2008 and 2009, and zero otherwise to control for the effects of the global financial crisis.

Panel A in Table 1 shows the number of firm-year observations by ultimate controller. Family-owned firms account for 76.2% of observations of which approximately

47.9% refer to firms where family ownerships exceeds 50% of cash flow rights; 36.6% where rights lie between 20% and 50%; and 12.5% family voting trusts. Non-family ownership divides across widely held firms (15%) and others (8.8% including foreign-owned, state-owned, voting trusts). We test for mean differences using Tukey's adjustment for multiple comparisons. Firm value measured by Tobin's Q is statistically comparable between family firms and widely held firms; within family firms, firms in which families control up to 20% of cash flow rights achieve a significantly larger Tobin's Q ratio than firms where cash flow rights are greater. Other non-family firms underperform both family majority firms and widely held firms (at 5 percent). Panel B shows the distribution of CEM. The number of observations for firms using at least one CEM is 62%: the most popular type of CEM is multiple control chains (44%) followed by pyramids (18%) and dual class shares (14%). Panel C shows the components of the BD Index. Whilst most firms follow the MCCG recommendations, compliance is highest for independent directors and board size (at 96% and 86%, respectively). After dividing compliance into four cohorts in ascending order of compliance, we find the most compliant firms enjoy higher value and exhibit a greater tendency to risk-taking.

Table 1 here

Panel A of Table 2 shows descriptive firm values and risks across industrial sectors, and reports the results of tests for mean differences between family firms and non-family. Whereas family firms assume significantly higher performance hazard and venturing risks (both 1 percent) and greater total risk (5 percent), they more frequently employ control mechanisms (1 percent) and operate smaller boards (1 percent). Family firms tend to be smaller, pay fewer dividends, are less reliant on raising funds via ADRs, and are younger (all at 1 percent). Although family firms comply more readily with the MCCG, the difference is insignificant.

Table 2 here

4. Methodology

Regression analysis determines if performance differentials exist between family and non-family firms. We use two-way cluster regressions (firm and year) because they improve the precision of standard errors yielding better inference than one-way cluster type methods even with a limited number of clusters (Petersen, 2009; Thompson, 2011). Improvements in precision obtain from adjusting the errors by weights that apply to the clusters to accommodate intra-group correlation by relaxing the normal requirement of independent observations. Equation [1] shows the abridged baseline model:

$$Y_{it} = \alpha_{it} + \beta_1 Family_i + \beta_k(Governance_{it}) + \beta_j(Controls_{it-1}) + \mu_{it} [1]$$

Y_{it} measures value or risk-taking; Family equals one for family-owned firms, zero otherwise. In the value regressions, board structure (BD) and control mechanisms (CEM) proxy for governance; size, leverage, dividends, fixed assets, and firm age plus its quadratic term are firm-level controls.

Equation [2] replaces the binary indicator of family ownership with family corporate ownership (FCO), which measures the cash flow rights of family controllers, and a quadratic term to test for expected non-linear dynamics between cash flow rights and value:

$$Y_{it} = \alpha_{it} + \beta_1 FCO_i + \beta_2 FCO_i^2 + \beta_k(Governance_{it}) + \beta_j(Controls_{it-1}) + \mu_{it} [2]$$

We control for industry effects using (unreported) binary variables (based on the Industry Classification Benchmark – see Table 2), and winsorize financial and market variables at the 99th and 1st percentile values to mitigate the influence of outliers.

The choice of board structure (BD) and firm performance are endogenous. To address potential endogeneity concerns, Adams et al (2010) recommend treating some aspects of governance structure as exogenous in the short run for investigative purposes. We accept this suggestion because family control and ownership exhibit mild inter-temporal variation. In addition, we account for endogeneity using formal methods. We take one period lags of firm-level variables to resolve simultaneity concerns;³ use restricted and unrestricted regressions (Klapper and Love, 2004) to test for omitted variable bias.

Omitted variable bias arises when variables that determine board structure also affect performance. We tackle this problem as follows. First, we augment equation [1] with two variables that could affect BD and firm value. If the coefficient on BD retains significance, we can infer that omitted variables do not cause spurious results. The first additional binary variable equals unity if a firm's headquarters locate in Mexico City and zero otherwise. A capital city location enhances value because economic development, infrastructure, and availability of services are greater in Mexico City (Chong and Lopez-de-Silanes, 2007). A second variable equals one if a firm issued an ADR (American Depositary Receipt) either on the New York Stock Exchange or NASDAQ and zero otherwise.⁴ A priori cross-listed firms comply with good governance practices at home and abroad which affects value. Ex ante these firms are more risky because the change in volatility of the underlying stock reflects changes in the return process arising from the foreign listing (Jayaraman et al, 1993). Given that firm age might be endogenous to board structure, we estimate the models both with and without firm age.

³ Simultaneity is not problematic for corporate governance data. The limited annual variation in governance indicators implies that any changes are unlikely to cause changes in value.

⁴ We obtain information from www.adr.com.

Second, and noting the limitations of multiple regression models in the context of business research (Woodside, 2013), we test for omitted variable bias by augmenting the models with interaction terms between the corporate governance proxy, BD Index, and firm-specific controls. Identifying potential interactive effects rather than net effects is best practice in business research. As illustration, we evaluate the effect on value (risk) of a large firm complying with good governance practices. We orthogonalize the interaction terms used as predictor variables to circumvent multicollinearity problems.⁵ The effects of the interactions are determined by testing that the linear combination of coefficients on interaction terms equals zero; and by a Wald test procedure that the joint significance of the interactions equals zero. Our final estimations retain only significant interaction terms (Armstrong, 2012).

Finally, the assumptions of exogeneity of the explanatory variables are relaxed and we re-estimate the regressions using formal methods to control for endogeneity problems. We use the General System Method of Moments (system-GMM), which uses a system of equations for each period in order to obtain estimates with standard errors robust to bias that might arise from endogeneity problems. System-GMM combines first difference equations with equations in levels that are instrumented with lags in levels and lags in differences of the endogenous variables, respectively (Wintoki et al, 2012).

5. Results

5.1 Estimated relationships from regressions on value

Table 3 presents results from cluster regressions using Tobin's Q (TQ) and the Market-to-Book ratio (MB) as proxies for firm value. Columns (1-2) show results from estimations of equation [1]. In unreported regressions, we re-estimate equation [1] specifying interaction terms between BD and other controls. Whereas we reject that the

⁵ To orthogonalize the interactive terms, we regress a standard interactive term on its constituents and employ the residual as a covariate.

combined value of the coefficients is zero, closer examination of individual coefficients reveals we should retain the interaction term for fixed assets in the regressions with TQ and MB. Subsequently, we re-estimate equation [1] absenteing the two covariates (*Mexico City* and *ADR*) used to control for omitted variable bias.⁶ BD retains significance when these variables are included, which demonstrates the results are not spurious.

Our first result demonstrates that the corporate value of family firms is not significantly different from non-family concerns in Mexico when Tobin's Q is proxy for firm value but family firms enjoy significantly higher value (at 5 percent) when the Market-to-book ratio is proxy. To test the robustness of the result, we re-estimate equation [1] using system-GMM to account for potential endogeneity of BD, size and leverage, which we instrument with their lags (see Table 7). GMM regressions specify the lagged value of the dependent variable to control for the dynamic nature of firm value (TQ or MB), which also are used as instruments. We consider that the dividends ratio is predetermined meaning we treat the remaining variables in the model as exogenous. A predetermined variable means that its current value is correlated with past values of the dependent variable. On the contrary, a variable is considered endogenous when its current value is correlated not only with the past values, but also with the current values of the dependent variable. Our model specifications are appropriate. First, it is desirable that the first differences are correlated in first order AR (1), indicating the presence of dynamic effects that are considered in the model through the inclusion of lags of the dependent variables. However, it is expected that these differences do not exist in AR (2), as if present they indicate that the estimators are inefficient and inconsistent. AR tests (1) and AR (2) p-values produce the expected model support. Serial correlation is absent in the second

⁶ When TQ measures corporate value, the coefficients for BD from estimation of equations [1] and [2] absent controls for omitted variable bias (with firm age) are 0.1825 (0.1628) and 0.1703 (0.1539). Using the MB to check robustness, the comparative coefficients are 0.3720 (0.3263) and 0.3224 (0.3376). All coefficients are significant at the 1 percent level.

differences AR (2). Second, the Hansen test of over-identification confirms the validity of the instruments, although appearing to be weaker in the MB regression. The p-values for the differences-in-Hansen test of over-identification demonstrate that the instruments in the level equations are exogenous. A first main result based on the estimator for family control suggests family firms are valued higher than non-family concerns, if we use MB to proxy value (see Table 7, column (2)). Therefore, we cautiously accept H1a.

We obtain our second result from equation [2]. It shows a significant non-linear relationship between value and family cash flow rights, meaning we accept H1b and irrespective of the choice of firm value indicator (see Table 3, columns (3) and (4)). The coefficients on FCO and its quadratic term infer a positive association between increasing family corporate ownership and firm value – to approximately 40% to 50% – before entrenching at higher levels of control.⁷ This is an important finding because it implies family ownership mitigates agency problems at lower levels of cash flow rights by enhancing monitoring efforts and minimizing opportunities for expropriation (Anderson and Reeb, 2003). Whilst supporting the view that family owners perceive investment as a longer-term perspective, which in turn realizes value (James, 1999), it could also imply firm owners follow objectives other than value maximization when control is highly concentrated.

While the inverse relationships between CEM and firm value are indicative that minority investor's recognize the separation of ownership and control could allow the expropriation of resources by controllers (Villalonga & Amit, 2006), the coefficients lack significance. This result is partially consistent with findings that show CEM lowers firm value in emerging markets (see Lins, 2003). A greater compliance with the Mexican Corporate Governance Code (MCCG through BD) realizes higher value inferring that good

⁷ Turning points are found using the second derivative of the coefficients on FCO and its quadratic.

governance practices substitute for weak environments (Poletti-Hughes, 2009). Our result supports evidence that family owner's use compliance to resolve intra-familial disputes (Holan and Sanz, 2006).

Greater levels of leverage lead to significantly lower levels of firm value irrespective of the measure of value. Larger firm size is positively correlated with firm value when the Market-to-book ratio is proxy for firm value. Larger firms with better corporate governance also generate higher value (column 3). Whilst a capital city location produces a value premium, the crisis episode reduced value in 2008 and 2009 (columns 1 and 3). Whilst firm value diminishes as firms' age, columns (2) and (4) show a turning point exists and that firm value increases again for older firms.

Table 3 here

We use quantile regressions to allow for heterogeneous responses to family control and governance. Intuitively, low value firms may respond to compliance with governance and family control in a way different to higher value firms. This prospect implies more than a single parameter is necessary to describe relationships between value and family control, and value and governance. Therefore, we use quantile regression to identify the impact of our regressors at different points on the distribution of firm value (at the 25th, 50th and 75th percentiles to represent low, medium and high levels of value). We run Breusch-Pagan / Cool-Weisberg tests and reject the null hypothesis of homoscedastic errors, which justifies use of quantile regressions. To conserve space, we present results for family control, family ownership, CEM and BD, alongside the pseudo R-square for each regression.

From Table 4, panel A we observe that family ownership creates significantly higher firm value for low, medium and high value firms, and irrespective of value measure. This finding offers further support for H1 with the modification that family firms are valued higher than non-family firms are. Panel B presents the findings for family ownership and

confirms the dominance of family firms, irrespective of the level and measure of value. Whereas compliance with best practice corporate governance (BD) is value enhancing for firms across the distribution of value (irrespective of proxy), a use of control mechanisms (CEM) mostly lessens value for low value firms. Table 4, panel B, offers unconditional support for H1b, because the coefficients on FCO and FCO² indicate the presence of a significant and inverse shaped U-relation with firm value with inflexion points between about 40% and 50%.

5.2 Estimated relationships from regressions on risk-taking

We re-estimate equation [1] using risk as the dependent variable and *family* to indicate family ownership. Drawing on theoretical arguments that firms face different types of risk, we estimate separate regressions for performance hazard risk; venturing risk; and total risk. We specify orthogonal interaction variables because BD affects risks through interactions with covariates. Table 5 shows the results.

Our main result demonstrates unambiguously that family firms assume significantly higher levels of performance hazard risk and venturing risk (at 1 percent) and total risk (at 5 percent) than non-family firms do (columns 1-3). Based on this result we accept H2a. We qualify this important result because there is unequivocal and statistically significant evidence that family firms assume different types of risk compared to non-family firms. Consistent with our analysis of firm value, we employ system-GMM to re-estimate equation [1] and test the robustness of the results. Table 7, columns (3)-(5) offers robust statistical evidence that family firms assume greater performance hazard risk (at 1 percent), venturing risk (at 5 percent) and total risk (at 10 percent) than non-family firms do. The validity of the findings are confirmed by statistical tests (AR(2), Hansen test and diff-Hansen). Based on the results, we accept H2b and claim that family firms take risks to protect patrimony rather than maximise value in Mexico.

We broaden the analysis to include FCO and its quadratic term (Table 5, columns (4)-(6)). Our findings show that family firms assume greater total risk as cash flow ownership increases. Entrenchment occurs when the cash flow ownership of the family is between 50 and 60 percent (column 6) though the coefficient on the quadratic term is insignificant at conventional levels. However, cash flow ownership does not appear to yield a significant effect in performance hazard risk or venturing risk (columns 4-5). Our results show that venturing risk was significantly higher during the crisis period; whereas total risk is decreasing in firm age, a turning point is reached and more mature firms seem willing to assume, and manage, higher levels of total risk.

Table 5 here

Table 6 reports results from quantile regressions for low-risk and high-risk firms only. Panel A (columns (2), (4) and (6) show family firms take greater amounts of performance hazard risk, venturing risk, and total risk than high risk (75th percentile) non-family concerns. We observe a performance differential at low levels of total risk (25th percentile). Arguably, families in risky firms prioritise increasing growth and profitability by taking larger business projects (Nguyen, 2011). Panel B reveals the presence of an inverse U-shape relationship between venturing risk and family control, and total risk and family control at low-risk and high-risk family firms.

Table 6 here

The result that family firms assume greater performance hazard risk supports conjecture that preservation of SEW is a salient strategic objective for controlling families in Mexico. It suggests families willingly trade the probability of below-par performance in the future against the aim of enhancing patrimony through greater risk tolerance, or alternatively, to prioritise firm survival over value maximisation. Lastly, our analysis of

risk preferences uncovers significant differences in venturing risks at family and non-family firms, which might be present for firms that are naturally risk-takers. Our results partially support Berrone et al (2012) who find family firms are averse to forward-looking venturing risk though tolerant of performance hazard risk providing it preserves SEW.

A use of control mechanisms offsets a greater total risk-taking of family firms by inducing conservatism that significantly lowers total risk-taking and venturing risk-taking for high-risk firms. We conjecture that the desire for patrimony could create conservative attitudes to risk and surmise this explanation is more credible than the alternative proposition that CEM increases the propensity for firm controllers to expropriate.

The 2010 revision of the MCCG requires firms to identify and report risk factors in an effort to improve the transparency of risk management. Board structure should control for risk-appetite. Therefore, we employ the cluster regressions and test the null that the combined impact of the linear effect of the BD Index plus interaction terms is zero. Whereas the findings infer that firms, which more stringently comply with the MCCG assume higher total risk and lower performance hazard risk and venturing risk, the results are insignificant. Plausibly, shareholders tolerate more risk than firm managers do, because shareholders benefit from portfolio diversification and restrictions on downside risk due to limited liability. However, family owners could tolerate less risk particularly if they associate firm value with family wealth, which owners will not jeopardize in case poor decision-making dilutes the inheritance value of the endowed firm (Gómez-Mejía et al, 2007). Similarly, family owners in Taiwan use familial involvement on boards, and cronyism, to control risk-taking to preserve familial wealth (Su and Lee, 2013).

5.3 Value and risk

We consider the proposition that causality runs from risk-taking to value. Tables 8a and 8b show the results of re-estimating equation [1], omitting the proxies for family, CEM

and BD, and including as covariates the one period lag of risk and firm-specific factors. We estimate separate cluster regressions to identify the effect of each risk type on firm value, and re-estimate using system-GMM for robustness. Generally, risk-taking realises significant value gains. Consistent with our earlier result, the type of risk matters: assuming greater performance hazard risk realises higher next period value. Although venturing risk yields an effect in the same direction, the coefficient is insignificant. Our evidence suggests that Mexican firms embark on riskier strategies to generate greater competitive advantage to enhance patrimony. The results are estimated with both measures of value, i.e. TQ and MB and confirm that (i) family firms achieve significantly higher corporate values relative to non-family concerns; and (ii) risk-taking is a significant predictor of next period value and the type of risk matters.

Table 8a and 8b here

5.4 Robustness

To examine the robustness of our results, we specify alternative indicators of performance hazard risk. Following Cruz et al (2014), we construct an alternative indicator as the natural logarithm of a firm's ROA (return on assets) at year $t-1$ to ROA at year t . This variable takes a negative value when firm performance at year t is above that of the previous year, zero when performance is equivalent, and positive if a firm's ROA declines, which implies that this indicator increases as firm performance declines. Second, we employ a performance-adjusted metric, namely, a firm's ROA median-adjusted by industry and year. Lastly, we specify a firm's annual sales growth median-adjusted by industry and year. The choice of sales growth is consistent with Attig et al (2016). The results from re-

estimating the value and risk regressions using the alternative indicators of performance hazard risk are consistent with the main results.⁸

We examine the reliability of our results by determining the predictive validity of the models from tests using holdout samples (Woodside, 2013). We randomly divide the sample into two sub-samples (firms 1-51 and 52-101). For models reported in column (1) and (2) of Table 3, and columns (1, 2 and 3) of Table 5, we estimate the predicted values of the dependent variables for firms in sub-sample one using the estimated coefficients from the hold-out sample, and repeat the process to derive predicted values for firms in sub-sample two. To establish the predictive validity of the models we correlate predicted and actual values. Table 9 shows all but one correlation is significant at the 5 percent level implying that our models hold predictive validity.

Table 9 here

Conclusions

The Mexican case offers insight into a Latin American setting on how corporate governance can discipline owners and boards when: (1) a weak legal environment struggles to protect minority investors; (2) family control is the dominant corporate model; (3) cultural traditions promote family patrimony.

The Mexican context is as an example of an emerging Latin American market. Mexico presents an interesting case study for different reasons. First, family ownership is the dominant firm ownership model and, in conflict with good corporate governance practices, families or family connections tend to both sit on the board and manage the company, limiting the involvement of minority shareholders. Culture and traditions in Mexico resemble those of the Latin American region where family control is predominant as a rational means to safeguard a firm's resources to pass on to future generations, thereby

⁸ The results from regressions using the alternative measures of performance hazard risk are available from the authors upon request.

increasing a firm's value as a consequence and possibly increasing the involvement in innovative business projects (risk-taking) as a means of achieving that goal. In addition, the legal environment in Mexico as in Latin America as a whole, although improved in recent years, limits firms' access to finance as a result of the weak legal system that prevails (La Porta et al, 1998).

Our results strongly suggest the culture and tradition of Mexican families influence firm behaviour with repercussions for value and risk-taking. Family controllers desire to bequeath viable firms and family descendants participating in firm operations tend to demonstrate responsibility and loyalty towards the familial entity. Our findings confirm results from other countries showing family firms outperform non-family firms in terms of value, particularly in firms with higher values. We also find Mexico's family firms willingly assume higher risk but the objectives for risk-taking differ from those of non-family firms. Specifically, firms assume performance hazard risk with the aim to preserve socioemotional wealth, even though it could increase the probability of financial duress and bankruptcy. Firms behave in this manner providing taking this type of risk does not endanger continuity of the family firm. By contrast, we find a significant difference between the family and non-family cohorts concerning venturing risks, albeit only for firms taking greatest risks. This suggests that higher levels of venturing risk might indicate greater competitive advantage for family firms, which encourages these firms to pursue substitute strategies should firm performance fall below target.

Importantly, firm value is increasing in cash flow ownership until a threshold of control is met, which we calculate to be around 40% to 50%. The Mexican result confirms some predictions of agency and stewardship theories: when family control is less concentrated, a greater presence of outside and/or affiliate directors lessens agency costs, and motivates family members to fulfil organizational objectives in line with the

alignment-of-interests hypothesis. However, our result infers that at higher levels of control, the aversion to losing SEW, including the endowment of firms to heirs, instils a conservative attitude to risk-taking as firm controllers prioritize objectives other than value maximization. Whereas the use of control mechanisms in Mexican firms seem to decrease value and risk-taking, this negative effect is offset by the compliance with corporate governance recommendations regarding the composition of the board of directors.

In summary, the Mexican result demonstrates that socioemotional wealth theory can adequately explain the dynamics of financial behaviour in family firms. We suggest the SEW perspective complements agency and stewardship arguments that are commonly invoked to explain the higher values of family firms versus non-family concerns.

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Table 1**Distribution of observations by category**

	No. of observations	%
Panel A: Controllers		
Sample size	874	100.0
Widely held	131	15.0
Family of which:	666	76.2
<i>Family minority-owned (20-49%)</i>	244	27.9
<i>Family majority-owned (> 50%)</i>	319	36.5
<i>Family voting trust</i>	65	9.5
Non-family (voting trust; foreign; state)	77	8.8
Panel B: Control mechanisms (CEM)		
No. of firms with at least one CEM	543	62
Pyramids	156	18
Multiple control chains	384	44
Dual-class shares	151	17
Panel C: Corporate Governance attributes on the composition of boards of directors (BD)		
Non CEO-Chairman duality	539	62
Board experience	645	74
Board size (between 5-15 members)	752	86
Independent directors ($\geq 25\%$)	838	96

The control cut-off is at 20%. The sample comprises 874 observations for the period 2004 to 2013.

Table 2: Descriptive Statistics: by Industrial Sector and family versus non-family firms (*** p<0.01, ** p<0.05, * p<0.1)

	Firms		Observations		Value		Risks	
<i>Industrial Sector</i>	<i>No.</i>		<i>No.</i>	<i>Family firms (% of 667)</i>	<i>Tobin's Q</i>	<i>Total</i>	<i>Hazard</i>	<i>Venturing</i>
Basic Materials	15		135	81.48	1.38	0.32	-0.11	0.11
Industrials	29		262	75.95	1.21	0.22	-0.07	0.08
Consumer Goods	27		210	65.71	1.39	0.24	-0.08	0.06
Consumer Services	17		135	77.04	1.27	0.19	-0.04	0.08
Telecommunications	12		93	92.47	1.49	0.26	-0.10	0.08
Health	4		40	75.00	1.52	0.20	-0.10	0.06
	[a] All firms		[b] Family firms		[c] Non-family firms		Difference-in-means	
<i>Variables</i>	<i>Mean</i>	<i>S.D.</i>	<i>Mean</i>	<i>S.D.</i>	<i>Mean</i>	<i>S.D.</i>	<i>[b] – [c]</i>	<i>t-statistic</i>
Tobin's Q	1.3328	0.6134	1.3457	0.5961	1.2913	0.6659	0.0139	0.30
Market-to-book	1.7588	1.4365	1.8133	1.4728	1.5837	1.3010	0.2019*	1.85
Total risk	0.2417	0.2152	0.2530	0.2192	0.2073	0.1989	0.0382**	2.34
Performance hazard risk	-0.0714	0.2243	-0.0823	0.2274	-0.0369	0.2107	-0.0845***	-3.91
Venturing risk	0.0813	0.0680	0.0867	0.0751	0.0640	0.0317	0.0219***	4.36
BD Index	3.1716	0.7355	3.1982	0.7043	3.0865	0.8237	0.0578	1.03
Control mechanisms	0.6201	0.4856	0.6877	0.4638	0.4038	0.4919	0.2747***	7.68
Size (log)	16.30	1.6921	16.20	1.6236	16.59	1.8696	-0.3843***	-3.00
Leverage (ratio)	1.0487	2.0671	1.0858	2.1710	0.9286	1.6859	0.1823	1.13
Dividend paid (ratio)	0.0322	0.0689	0.0290	0.0605	0.0422	0.0904	-0.0140***	-2.64
Fixed assets (ratio)	0.4215	0.2145	0.4267	0.2154	0.4051	0.2110	0.0274*	1.67
ADR	0.2323	0.4225	0.1652	0.3716	0.4471	0.4984	-0.2864***	-9.23
Mexico City	0.5469	0.4981	0.5375	0.4990	0.5769	0.4952	-0.0413	-1.09
Firm age (years)	30.28	19.42	30.24	18.34	30.38	22.56	0.0257	0.02
Board size (no.)	11.32	3.69	10.81	3.45	12.96	3.97	-2.1160***	-7.83
Independents-to-board size	0.4522	0.1457	0.4569	0.1446	0.4372	0.1487	0.0209*	1.88

The BD Index increases by one unit if a firm complies with any of four good corporate governance practices recommended by the MCCG: (i) Board size - if board size ranges from five to fifteen members; (ii) Independence - if the ratio equals at least 20%; (iii) Board experience - if the experience indicator lies between one and three; and (iv) CEO-Chairperson non-duality. (See section 3 for further information and definitions of other variables.)

Table 3

Estimated relationships between firm value and family control/ownership from cluster regressions

	(Tobin's Q)	(M-B)	(Tobin's Q)	(M-B)
Family	0.156 (1.55)	0.430** (2.12)	- -	- -
FCO	- -	- -	0.0887** (2.18)	0.198** (2.28)
FCO ²	- -	- -	-0.0104** (-2.44)	-0.0192** (-1.99)
CEM	-0.117 (-1.38)	-0.180 (-0.96)	-0.123 (-1.53)	-0.191 (-1.04)
CG Index	0.146*** (2.79)	0.284*** (2.79)	0.108** (2.52)	0.293*** (2.83)
Size _{t-1}	0.0420 (1.48)	0.177*** (2.82)	0.0447 (1.63)	0.188*** (3.04)
CG * Size _{t-1}	- -	- -	0.00437* (1.74)	- -
Leverage _{t-1}	-0.0362*** (-3.78)	-0.0546** (-2.45)	-0.0366*** (-3.60)	-0.0560** (-2.35)
Dividends _{t-1}	0.257*** (3.33)	0.379** (1.96)	0.245*** (3.16)	0.371** (1.98)
Fixed Assets _{t-1}	- -	-0.651 (-1.53)	- -	-0.608 (-1.45)
CG * Fixed Assets _{t-1}	0.602*** (2.99)	1.187*** (2.74)	0.523*** (2.75)	1.165*** (2.68)
Mexico City	0.269*** (2.74)	0.628*** (2.90)	0.257*** (2.67)	0.623*** (2.89)
Crisis	-0.136* (-1.72)	-0.243 (-1.50)	-0.141* (-1.92)	-0.251 (-1.58)
Firm age	-0.746* (-1.85)	-1.961** (-2.01)	-0.659 (-1.62)	-1.934** (-1.99)
Firm age ²	0.105 (1.62)	0.278* (1.88)	0.0922 (1.40)	0.273* (1.84)
Intercept	1.266 (1.32)	1.070 (0.48)	1.276 (1.37)	0.874 (0.40)
Observations	754	756	754	756
R ²	0.277	0.280	0.288	0.282
Adjusted R ²	0.261	0.263	0.271	0.265

Table 4**Quartile regressions of the relationship between firm value and family control/ownership**

Dependent variable:	TQ				MB	
Quartiles	(1) Q25	(2) Q50	(3) Q75	(4) Q25	(5) Q50	(6) Q75
Panel A						
Family	0.146*** (2.71)	0.224*** (4.18)	0.146** (2.01)	0.188* (1.71)	0.423*** (3.53)	0.443*** (3.19)
CEM	-0.135*** (-2.99)	-0.0827* (-1.76)	-0.000957 (-0.01)	-0.190** (-2.42)	-0.0542 (-0.53)	-0.204 (-1.24)
BD	0.0999*** (3.14)	0.0822*** (2.93)	0.175*** (4.09)	0.185*** (2.74)	0.226*** (3.60)	0.270*** (3.15)
Pseudo R^2	0.1439	0.1830	0.2190	0.1598	0.1981	0.2394
Panel B						
FCO	0.0872*** (4.05)	0.0893*** (4.02)	0.0739** (2.53)	0.158*** (3.33)	0.226*** (4.66)	0.235*** (4.02)
FCO ²	-0.0091*** (-3.63)	-0.0089*** (-3.66)	-0.0090*** (-2.84)	-0.0166*** (-2.95)	-0.0239*** (-4.42)	-0.0241*** (-3.69)
CEM	-0.121*** (-3.19)	-0.0577 (-1.37)	0.0217 (0.35)	-0.173** (-2.12)	-0.0310 (-0.30)	-0.243 (-1.45)
BD	0.0854** (2.36)	0.0709** (2.22)	0.131** (2.42)	0.177*** (2.63)	0.261*** (4.02)	0.294*** (3.49)
Pseudo R^2	0.1527	0.1845	0.2222	0.1649	0.2023	0.2431

Table 5**Estimated relationships between risk-taking and family control/ownership from cluster regressions**

	(1) P. haz. risk	(2) Vent. risk	(3) Total risk	(4) P. haz risk	(5) Vent. risk	(6) Total risk
Family	-0.057*** (-2.81)	0.0219*** (-2.94)	0.0700** (-2.22)	- -	- -	- -
FCO	- -	- -	- -	-0.00648 (-0.78)	0.00667 (-1.59)	0.0246** (-2.05)
FCO ²	- -	- -	- -	0.000171 (-0.21)	-0.000493 (-0.94)	-0.00206 (-1.57)
CEM	0.0204 (-1.22)	-0.0118 (-1.20)	-0.0475* (-1.70)	0.0139 (-0.86)	-0.0108 (-1.17)	-0.0454* (-1.68)
CG Index	0.00234 (-0.20)	0.00119 (-0.33)	0.0325* (-1.94)	0.00258 (-0.21)	0.00133 (-0.36)	0.0324* (-1.89)
Size _{t-1}	-0.00734 (-1.55)	0.000572 (-0.20)	0.00947 (-1.11)	-0.0107** (-2.04)	0.000828 (-0.27)	0.0101 (-1.19)
CG * Size _{t-1}	-0.0011 (-1.46)	- -	- -	-0.00125 (-1.60)	- -	- -
Leverage _{t-1}	0.00563 (-1.41)	0.00472 (-1.43)	-0.0174*** (-3.30)	0.00508 (-1.31)	0.00475 (-1.43)	-0.0172*** (-3.20)
CG * Lev. _{t-1}	0.0203*** (-4.08)	- -	- -	0.0207*** (-4.04)	- -	- -
Dividends _{t-1}	-0.061*** (-3.19)	-0.0107* (-1.66)	0.0669** (-2.49)	-0.065*** (-3.32)	-0.0104 (-1.48)	0.0677*** (-2.59)
Fixed Assets _{t-1}	- -	-0.0277 (-1.21)	- -	- -	-0.0259 (-1.16)	- -
CG * F. Assets _{t-1}	- -	- -	0.147* (-1.68)	- -	- -	0.151* (-1.75)
Mexico City	- -	- -	0.0853*** (-2.99)	- -	- -	0.0853*** (-2.99)
ADR	- -	- -	- -	0.0408* (-1.72)	- -	- -
Crisis	0.0566 (-1.14)	0.0228*** (-3.00)	0.0418 (-1.42)	0.0576 (-1.14)	0.0225*** (-2.94)	0.0411 (-1.41)
Firm age	0.0185 (-0.16)	-0.00848 (-0.25)	-0.236** (-2.19)	0.00292 (-0.03)	-0.00785 (-0.23)	-0.235** (-2.14)
Firm age ²	0.00169 (-0.09)	0.00135 (-0.26)	0.0322* (-1.90)	0.00448 (-0.25)	0.0012 (-0.23)	0.0320* (-1.84)
Intercept	-0.0090 (-0.04)	0.0652 (-0.71)	0.227 (-0.80)	0.0428 (-0.22)	0.06 (-0.63)	0.219 (-0.77)
Observations	758	755	714	758	755	714
R ²	0.065	0.130	0.212	0.065	0.129	0.211
Adjusted R ²	0.044	0.112	0.194	0.042	0.110	0.192

Table 6

Estimated relationships of the relationship between risk-taking and family control/ownership from quartile regressions for low and high risk firms

Dep. var:	Performance hazard risk		Venturing risk		Total risk	
	(1)	(2)	(3)	(4)	(5)	(6)
Quartiles	Q25	Q75	Q25	Q75	Q25	Q75
Panel A						
Family	-0.0217 (-1.19)	-0.0275* (-1.79)	0.000647 (1.07)	0.00866** (2.36)	0.0370*** (2.95)	0.112*** (3.88)
CEM	0.00438 (0.30)	-0.00294 (-0.22)	-0.000359 (-0.57)	-0.00945* (-1.93)	-0.0187* (-1.67)	-0.062*** (-2.74)
BD	0.00472 (0.37)	-0.00059 (-0.03)	0.00083** (2.07)	-0.00147 (-0.54)	0.00984 (1.37)	0.0269* (1.85)
Pseudo R^2	0.0646	0.1131	0.1440	0.1624	0.1293	0.1719
Panel B						
FCO	0.00023 (0.28)	0.00085 (0.92)	0.0739** (2.53)	0.00478** (2.44)	0.0154*** (2.81)	0.0355*** (2.66)
FCO ²	-0.00199 (-0.10)	0.0194 (0.99)	-0.009*** (-2.84)	-0.0005** (-2.23)	-0.0013** (-2.07)	-0.0031** (-2.01)
CEM	0.00455 (0.34)	-0.00363 (-0.27)	-0.000143 (-0.47)	-0.0098** (-2.02)	-0.0151 (-1.40)	-0.0469** (-2.01)
BD	0.00201 (0.16)	0.00381 (0.23)	0.000026 (0.72)	-0.0017 (-0.59)	0.0059 (0.73)	0.0284* (1.91)
Pseudo R^2	0.0640	0.1128	0.1441	0.1633	0.1323	0.1706

Table 7

System GMM estimation of the relationship between firm value (risk-taking) and family control/ownership

Dependent variable:	TQ	MB	Total risk	Performance hazard	Venturing risk
	(1)	(2)	(3)	(4)	(5)
Family	0.0437 (0.96)	0.313* (1.81)	0.126* (1.92)	-0.0955*** (-2.81)	0.0323** (2.04)
CEM	-0.0544 (-1.19)	-0.139 (-0.91)	-0.0172 (-0.34)	0.135** (2.17)	0.00324 (0.14)
BD	-0.00509 (-0.12)	-0.291 (-1.44)	-0.00601 (-0.17)	-0.0158 (-0.54)	-0.00955 (-1.01)
Size $t-1$	0.0169 (0.52)	0.126 (1.34)	-0.0134 (-0.51)	-0.0602*** (-3.69)	-0.00389 (-0.85)
Leverage $t-1$	-0.0243** (-2.21)	-0.0689** (-2.15)	-0.0183** (-2.00)	0.00882 (0.98)	0.00163 (0.83)
Div. ratio $t-1$	0.378 (0.63)	1.316 (0.53)	0.425 (1.44)	-0.154 (-0.56)	-0.0181 (-0.29)
Fixed assets $t-1$	0.119 (0.51)	-0.394 (-0.54)	0.114 (0.91)	0.0389 (0.23)	-0.0505 (-1.66)
ADR	0.00183 (0.03)		0.0755 (1.04)		0.00704 (0.54)
DF	0.105*** (2.63)	0.308** (2.29)			
Dependent variables-1	0.709*** (8.57)	0.631*** (6.37)	0.533*** (3.88)	-0.0577 (-0.85)	0.602*** (9.04)
Intercept	0.139 (0.27)	-0.388 (-0.22)	0.237 (0.66)	1.021*** (3.41)	0.100 (1.06)
AR(1)	0.000	0.001	0.001	0.002	0.013
AR(2)	0.536	0.628	0.039	0.639	0.477
Hansen test	0.262	0.145	0.390	0.329	0.276
Diff-Hansen	0.225	0.106	0.411	0.885	0.595
Observations	765	767	725	770	763

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 8a**Estimated relationships between firm value and lagged risk from cluster regressions**

	(TQ)	(TQ)	(TQ)	(MB)	(MB)	(MB)
P. haz risk	-0.231*	-	-	-0.982***	-	-
	(-1.91)	-	-	(-3.88)	-	-
Vent. risk _{t-1}	-	0.0742	-	-	1.947	-
	-	(0.18)	-	-	(1.11)	-
Total risk _{t-1}	-	-	1.568***	-	-	2.636***
	-	-	(7.71)	-	-	(6.44)
Size _{t-1}	0.0229	0.0230	0.00388	0.143**	0.149**	0.118*
	(0.73)	(0.73)	(0.15)	(2.27)	(2.33)	(1.94)
Leverage _{t-1}	-0.0404***	-0.0419***	-0.00197	-0.0621**	-0.0719***	0.00963
	(-3.34)	(-3.43)	(-0.24)	(-2.47)	(-3.08)	(0.33)
Dividends _{t-1}	0.244***	0.260***	0.157**	0.330*	0.431**	0.201
	(3.00)	(3.16)	(2.55)	(1.74)	(2.34)	(1.15)
Fixed Assets _{t-1}	-0.156	-0.134	-0.0140	-0.789*	-0.644	-0.508
	(-0.68)	(-0.58)	(-0.09)	(-1.73)	(-1.43)	(-1.25)
Mexico City	0.294**	0.287**	0.213***	0.693***	0.677***	0.517***
	(2.51)	(2.42)	(3.05)	(3.05)	(2.92)	(3.05)
ADR	-0.0559	-0.0603	-0.0646	-0.149	-0.206	-0.186
	(-0.47)	(-0.50)	(-0.79)	(-0.55)	(-0.77)	(-0.80)
Crisis	-0.122	-0.137*	-0.216***	-0.186	-0.252	-0.373**
	(-1.42)	(-1.77)	(-2.69)	(-0.95)	(-1.58)	(-2.21)
Firm age	-0.772**	-0.939**	-0.557*	-1.975**	-2.431**	-1.840*
	(-2.05)	(-2.52)	(-1.86)	(-2.17)	(-2.36)	(-1.96)
Firm age ²	0.117*	0.140**	0.0919*	0.295**	0.357**	0.287**
	(1.91)	(2.32)	(1.91)	(2.15)	(2.30)	(1.98)
Intercept	2.118**	2.417***	1.736***	2.627	3.241	2.316
	(2.30)	(2.62)	(2.69)	(1.40)	(1.52)	(1.27)
Observations	754	750	713	756	751	715
R ²	0.223	0.221	0.461	0.257	0.248	0.349
Adjusted R ²	0.208	0.205	0.449	0.242	0.233	0.335

t statistics in parentheses

* p<0.10, ** p<0.05, *** p<0.01

Dummy variables for industrial sector included in all the regressions

Table 8b**Estimated relationships between firm value and lagged risk from system GMM**

	(1) TQ	(2) TQ	(3) TQ	(1) MB	(2) MB	(3) MB
Total risk $t-1$	1.478*** (4.89)			3.079*** (4.29)		
Per. hazard $t-1$		-0.258** (-2.45)			-0.777*** (-2.77)	
Vent. risk $t-1$			0.689 (1.12)			2.181 (1.01)
Size $t-1$	-0.00539 (-0.09)	0.130*** (2.80)	0.147** (2.49)	0.0462 (0.26)	0.348** (2.50)	0.407*** (3.01)
Leverage $t-1$	-0.0364** (-2.00)	-0.0541*** (-6.13)	-0.0503*** (-3.18)	-0.0846 (-1.46)	-0.137*** (-6.11)	-0.136*** (-3.61)
Div. ratio $t-1$	1.402 (1.30)	-0.223 (-0.20)	3.372 (1.50)	-1.347 (-0.39)	-2.790 (-0.73)	0.117 (0.02)
ADR	0.00410 (0.03)	-0.152 (-1.04)	-0.261 (-1.59)	0.0301 (0.06)	-0.304 (-0.68)	-0.383 (-0.79)
Mexico City	0.171* (1.94)	0.279*** (2.81)	0.201* (1.85)	0.613** (2.01)	0.916*** (3.41)	0.858** (2.48)
Intercept	1.158 (1.24)	-0.737 (-0.98)	-1.091 (-1.15)	0.412 (0.14)	-3.834* (-1.75)	-5.063** (-2.32)
AR(2)	0.276	0.587	0.324	0.539	0.112	0.187
Hansen test	0.142	0.390	0.132	0.357	0.475	0.463
Diff-Hansen	0.520	0.778	0.145	0.746	0.213	0.658
Observations	728	765	761	730	767	762
Instruments	71	98	71	71	98	71
No. of groups	99	103	103	99	103	103

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9**Correlation of actual values and predicted using hold-out samples**

ρ	Tobin's Q	MBT	Performance hazard risk	Venturing risk	Total risk
P1, Actual	0.2476*	0.3191*	0.1223*	0.2156*	0.3328*
P2, Actual	0.1940*	0.2473*	0.0798	0.2093*	0.2883*

Note: P1 is the predicted value for sub-sample 1 using hold-out sample 2. P2 is the predicted value for sub-sample 2 using hold-out sample 1. * denotes significance at the 5 percent level.